Important Advances in Clinical Medicine

Epitomes of Progress—Urology

The Scientific Board of the California Medical Association presents the following inventory of items of progress in urology. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and important clinical significance. The items are presented in simple epitome and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist the busy practitioner, student, research worker or scholar to stay abreast of these items of progress in urology which have recently achieved a substantial degree of authoritative acceptance, whether in his own field of special interest or another.

The items of progress listed below were selected by the Advisory Panel to the Section on Urology of the California Medical Association and the summaries were prepared under its direction.

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Transpubic Urethroplasty for Membranous Urethral Strictures

REPAIR OF traumatic stricture of the membranous urethra is a significant surgical challenge because of the relatively inaccessible location of this portion of the urethra behind the symphysis pubis. Transpubic surgical operation was first applied to posterior urethral strictures in 1962, when Pierce used total pubectomy, but this approach has more recently been popularized by Waterhouse. The proposed advantages of this approach are its superior exposure and its applicability to strictures more than 1 cm in length.

The surgical objective is to bypass the stricture anteriorly. After removal of a trapezoidal piece of pubic bone, the distal urethra is mobilized, spatulated and anastomosed to the anterior prostatic urethra at its apex. The prostate is not mobilized and the stricture is not excised.

Transpubic urethroplasty has been successfully carried out in patients with membranous urethral strictures secondary to pelvic fractures with disruption of the prostatic-membranous urethra, strictures following transurethral external sphincterotomy and stricture due to a compromise of the membranous urethra during radical retropubic prostatectomy.

The transpubic approach to membranous urethral strictures affords superior exposure and allows a direct, undervision and tension-free anastomosis. Wedge resection of the pubis is recommended over symphysiotomy and separation of pelvic bones, which may cause pelvic pain and instability. Operative blood loss can be significant and bleeding is difficult to control until the wedge of pubis is removed. The level of urinary control may be lost if prostatectomy has been carried out in a patient or subsequently is required, unless the bladder neck remains intact. The use of a pedicle graft of omentum, placed over the anastomosis, may improve the success

rate of this approach. Transpubic surgical operation provides excellent exposure with minimal morbidity and offers a direct approach to membranous urethral strictures.

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Morales P, Littmann R, Golimbu M: Transpubic surgery—A new approach to difficult pelvic operations. J Urol 110:564-570, Nov 1973

Urinary Lysosomal Enzymes for Early Detection of Renal Allograft Rejection

THE RELEASE of lysosomal enzymes into the urine, the result of cellular damage caused by rejection of a renal allograft is a valuable sign of early rejection.

Patients who received renal allotransplants have been monitored to compare the sensitivity of urine levels of β-galactosidase and N-acetyl-β-glucosaminidase. Using conventional clinical and laboratory measurements to detect impending rejection, a rapid (60 minute), simple, accurate, fluorometric assay was used to measure activity of both enzymes. Eighty percent of 32 rejection episodes were accompanied by a two-to-six-fold increase in enzyme release. Increases in serum creatinine and decreasing urine volumes occurred in 26 rejection episodes. In 12 episodes, elevated urinary enzyme levels were observed as early as four days before clinical evidence of rejection.

Rejection episodes, modified by high-dose administration of corticosteroids, were mirrored by a corresponding decrease in enzymatic activity.

It is postulated that urinary lysosomal enzyme measurements by fluorometric assays are valuable indicators of acute renal rejection, particularly when the diagnosis is not clearly established by conventional criteria. The accuracy of this rapid test makes it particularly appealing in the evaluation of renal allotransplantation rejection episodes.

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Complications of Urinary Undiversion

COMPLICATIONS of urinary undiversion may be divided between those related to patient selection and those pertaining to the operation. A detailed understanding of the anatomic and physiologic alterations in the dynamics of urine transport is an essential prerequisite for the selection of suitable candidates. The diverted urinary system, which is intended primarily for conduit function, is substantially changed to include reservoir function and must, therefore, be amended to provide efficient urine transport, an antireflux mechanism, adequate capacity, continence and complete emptying. In addition, the reconstructed system must be able to handle the mucus generated by the interposition of an intestinal segment. The implications of these hydrodynamic alterations, particularly in a patient with compromised renal function, may be profound.

The potential life-threatening hazards of urinary reconstruction demand rigid assessment of potential candidates and satisfactory demonstration of functional ability and stability of renal function by the singular measures of excretory urography and serum creatinine studies. The lower tract must be carefully evaluated and those factors that originally necessitated supravesical diversion must be recalled and carefully reassessed. Contraindications to undiversion include patients with continued renal deterioration or with creatinine clearance less than 40 ml per minute. Neurogenic bladder represents a relative contraindication.

When the proper operation is done correctly in a carefully chosen patient, the end result can be encouraging. Because of the precarious and delicate renal and metabolic balance involved, both the patient and the surgeon must recognize that the operation may either succeed brilliantly or fail dismally. The application of strict guidelines for patient selection and meticulous attention to intraoperative detail should help to tip the balance toward success.

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